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27 October 1972

## MEMORANDUM

North Vietnamese Reconstruction Priorities

The judgments made in this memorandum assume that the North Vietnamese believe that the current bombing limitation north of the 20° is valid and will continue for an indefinite period. Moreover, the intense peace negotiations currently underway would underscore the likelihood of a continued bombing stand-down and allow long-term planning for reconstruction to be undertaken. Manpower constraints may pose some slight problems, especially in terms of allocating people to needed areas. However, such constraints are not formidable as agricultural manpower is already largely provided for and regular manpower allotments have been made for reconstruction during the past six months of bombing -- particularly on the transportation system.

Reconstruction of Transportation Facilities

Probably the first priority for the Communists would be the reconstruction of their high-capacity but heavily damaged railroad network, primarily the Dong Dang line and -- depending on how soon the port of Haiphong is reactivated -- the Haiphong route. Manpower should not constrain this repair activity as sufficient numbers of personnel consistently have been allocated to repairs throughout the bombing and because new labor could be temporarily diverted from other activities such as air defense to aid in the repair effort on a crash basis.

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Quick and effective repairs of key routes should require only a few weeks to get the basic system functional -- i.e., clean up rail yards and restore smaller bridges -- but repair of such major crossings as the Hanoi Railroad/Highway Bridge over the Red River and the Canal des Rapides might take more than a month (see Appendix). The Dong Dang rail line would necessarily receive first priority for repairs to keep overland imports moving regardless of whether Haiphong is reopened or not. Until the port is reopened this line will continue to carry the bulk of imports as it did during the bombing. When Haiphong is reactivated, the line would still be required to move essential items while the reactivation was taking place and while the Haiphong rail line was being repaired. After the port is reopened, the line would still be needed and used for overland imports, especially covert military shipments.

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As of 27 October, six bridges and eight main yards were damaged on the key Dong Dang line. Repairs along this main import route have been frequent and efficient during [ ] (some bridges repaired within days of an attack\*) and could be quickly completed at all sites but two -- the Hanoi Railroad/Highway Bridges over the Red River and over the Canal des Rapides. These latter two are major crossings -- the bridge over the Red River over a mile long and that over the Canal des Rapides over 1,000 feet long -- and would require substantial work. Perhaps in anticipation of the bombing halt, repairs to these two key crossings were underway in mid-October. In the interim, rail

\* Examples are the bridges at Cao Nung, Vu Chua, and Lang Giai. The two bridges at Cao Nung have been damaged 17 times since May but quickly repaired, once in six days -- the shortest time yet observed. At Vu Chua, the seven bridges have been hit at least 35 times but repaired within at least two weeks of the attacks. Finally, at Lang Giai, 25 miles from the PRC, the six bridges have been hit 17 times, but repaired quickly, one in only 10 days.

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and highway ferries and pontoon crossings can be used to shuttle goods into the Hanoi area. Moreover, as of mid-October, repairs were already underway at all damaged rail facilities on this line, underscoring the fact that the line probably could be serviceable for through-rail service out of China to the Hanoi area within weeks.

Repair priority along the Haiphong rail line would be as high as that along the Dong Dang line, once efforts to reactivate the port are launched. Major interdictions along this route are at Haiphong and Hai Duong, where little previous repair has taken place. Repairs to these sites would thus take longer, but could also be completed in a few weeks.

Lower priorities would probably be assigned to repairs along the Lao Cai, Thai Nguyen, and Hon Gay routes. On the Lao Cai line, the Viet Tri bridge is the major bottleneck, the other damaged bridges being much smaller and more easily repaired. Repairs along the Thai Nguyen segment probably would depend on the priority assigned to restoring the electric power and steel manufacturing facilities at Thai Nguyen. The secondary Hon Gay line would probably be given the lowest priority of all as the route is not used for imports and the port of Hon Gay is severely damaged.

On the Hanoi-Thanh Hoa line to the 20th Parallel, which is about 10 miles north of Thanh Hoa, repairs have been undertaken during the bombing, although not as intensely as along the Dong Dang route. Depending on North Vietnamese overall intentions, repairs and supply movements along this stretch could be a barometer of future courses of action. If, as during the 1968 partial bombing halt during [redacted] repairs are quickly made and large quantities of supplies are prepositioned north of the bombing sector, it could indicate a continued supply effort to the south towards Laos, South Vietnam, and Cambodia to support troops in place, or could be a harbinger of North Vietnamese plans after the US withdrawal is completed.

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### Pipeline Construction

Continued petroleum pipeline construction in North Vietnam overland to PRC supply points is a function of the expected availability of future supplies via the port of Haiphong. Until it is reactivated, we would expect continued overland imports of petroleum via the pipelines and continued construction and elaboration of the pipeline system. Even after Haiphong is reactivated, it would make little apparent sense to let the existing pipelines go to waste as redundancy is a North Vietnamese logistics trademark and since it represents good contingency planning should the war flare up again. A good example of this redundancy is the continued construction of the pipeline north of Hon Gay, which was extended into the PRC between 6 and 21 October. This now gives the North Vietnamese four POL pipeline links with the PRC.

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Economic Restoration

North Vietnam faces economic reconstruction tasks roughly equal in magnitude to the damage and disruption incurred during the 1965-68 bombing period. Both the approach to restoration and progress in recovery are likely to parallel the post-1968 period, although the benefit of past experience should insure a faster rate of progress. As in the past, recovery will again be highly dependent on material and technical assistance from Communist countries. Efforts will be focused on two main problem areas: repair of physical bomb damage, largely in the modern industrial sector; and reversing the dispersal program, which involves primarily small-scale industry and handicrafts. The October-November agricultural harvest probably will not be affected by the shift to restoration of other sectors at least in terms of manpower constraints, inasmuch as most of the labor allocated to recent logistics efforts has been drawn from industry idled by the bombing and from the construction sector. As transportation and logistics repair become less labor-intensive in the absence of repeated bombing, any significant manpower constraint will become even less likely. Throughout its planning for reconstruction Hanoi will doubtless need to remember that the severest economic disruption has been in urban areas, and such welfare considerations as influence the choice of projects will tend to favor city-dwellers.

Little improvement in economic conditions can be expected during the first few weeks after a bombing halt. As noted above, repair of damage to principal transportation arteries almost certainly will receive the highest priority. The problems of raw material shortage and internal distribution bottlenecks that have curtailed production at undamaged enterprises will not be relieved until the transportation networks are significantly restored. Damage surveys, negotiation of reconstruction contracts, and the lead-time necessary to produce and import machinery for bomb-damaged installations will in many cases require months for completion. Some of this work may already be in progress as indicated by a recent influx of Soviet specialists. Nevertheless, if the past practice of relying on original suppliers for aid projects holds true, many additional technicians from other Communist countries will be needed. To date no foreign aid agreements for 1973 have been signed with major Communist suppliers\*, and this may reflect conscious delay

\* Agreements are usually signed before October of each year.

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in anticipation of a comprehensive review of bomb damage and reconstruction options. Beyond general stocktaking during the early weeks of a bombing halt, therefore, no significant change of North Vietnam's current economic status appears likely.

Hanoi's first attempts at industrial reconstruction of bomb damage will be concentrated on a few crucial industrial installations in the modern sector, undoubtedly including electric power and cement. Two key Soviet-built power-plants at Thac Ba and Uong Bi account for more than one-half the generating capacity in the country. The Haiphong Cement Plant, renovated and expanded with Rumanian assistance, is the only significant producer of cement. Almost without exception some portion of every damaged installation can be salvaged, and in many instances cannibalization of workable components will result in a functioning production line. Over the next several months, this option offers the prospect of modest improvement in production operations that might restore say 25% of cement production capacity, or increase power supply from the current level of around 25% of national capacity to perhaps 30% to 40%. Similar prospects exist wherever there is bomb damage, but Hanoi most likely will have to reconstruct on a selective basis because of the sheer immensity of the required effort, as well as lack of equipment and technical assistance.

Reconstruction progress will begin to slow down as repair involving cannibalization and light damage is completed. In the next phase of reconstruction, progress will demand almost total rebuilding of production lines. On this basis, reconstruction over the course of the next year probably will not restore more than one-half of damaged industrial capacity. Examples of specific plants that would not be reconstructed until this stage include Nam Dinh Textile Plant or Hon Gai Coal Processing Plant.

Some heavily damaged facilities, of course, may require an extended period of reconstruction but will appear of sufficient priority to justify a fairly prompt beginning. In instances in which a large capital investment is required for an important project, however, they may defer reconstruction in the early months until they are completely convinced there will be no further bombing. Reconstruction activities that may fit into this sort of priority longer-term reconstruction probably would include the Viet Tri Chemical Plant and most electric powerplants.

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Hanoi's handling of the dispersal program is much more difficult to judge. Some of the dispersed facilities probably will be left in place to bolster industrial capabilities on the local level. A great deal of the dispersed program will have to be reversed, however, for reasons of inadequate living conditions for displaced workers, distance from established trade and service centers, and imperative demands of production efficiency. The transition is likely to span at least six months, and probably will be staged to minimize disruption. Stable conditions in local industry and handicrafts, of course, may require a much longer period, depending on the success in overcoming raw material supplies and electricity.

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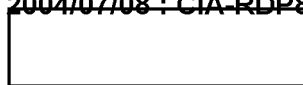
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Maritime Options

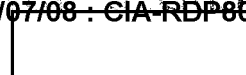
Assuming a cessation of bombing north of 20° and no further emplacement of mines, North Vietnam almost certainly will need to continue to rely on the new Chinese logistic corridor to handle the bulk of its international seaborne trade for several months more, even though it seems likely that a reactivation of North Vietnam's ports and channels will be accorded a high priority. The major factor in this judgment is the threat to shipping posed by the mines in Haiphong harbor. Currently, the main channel is seeded with Mark 52 mines and Mark 36 destructors on either side of the main channel.\* Given their present capabilities, it is unlikely that the North Vietnamese could clear the channel without outside assistance. The Soviets (and possibly the Chinese) have the technical capabilities, but the problems of clearing the channel would be formidable. There is no way of judging under what circumstances the Soviets would introduce their minesweeping assets. If no minesweeping is undertaken, the Mark 52 threat to the harbor will continue to 9 December when all of them would technically be sterile. The Mark 36s present an added complexity. They do not deactivate automatically but must be exploded. These weapons have a variety of controls and settings. They can be swept, but the varying conditions under which they activate make such a sweeping operation a complicated and time-consuming task.

Some appreciation of the complexity of the minesweeping task comes from a minesweeping contingency plan prepared by the US Navy known as Formation Sentry. Under this plan, US minesweepers and helicopters would be used to sweep all major North Vietnamese ports. As for Haiphong, the plan indicates that the main channel could be cleared in about 70 days with a 99% reliability factor. About 20 days would be required to bring the minesweeping assets in place once the order is given and about 47 days would be needed to complete minesweeping operations. Under these conditions, therefore, it would require a little over four months to return the port to its pre-bombing/mining

\* All of the other ports -- Cam Pha, Hon Gay, Vinh, Dong Hoi, and Thanh Hoa -- have been seeded only with Mark 36 destructors.

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capabilities. [Some use could be made of the port after the mines are cleared, but it would probably take an additional 60 days to dredge the harbor to its normal 16-foot level.]

#### Status of Haiphong

Despite large-scale air attacks, the port facilities of Haiphong are in relatively good shape. None of the wharves has been seriously damaged, and the major warehouses serving the dock area are generally undamaged. One warehouse has lost its roof and another has roof damage on its western edge. Otherwise, they both appear structurally sound. However, the oil storage facilities at the port, which before the intensified air war could store about 24,000 metric tons of POL, have been seriously damaged. Photography reveals that storage capacity may be down some 70% from its pre-bombing level as 11 of the 15 large vertical tanks have been either destroyed or seriously damaged. Moreover, petroleum pipeline facilities leading from the pier to the tanks and from the tanks to the nearby specialized petroleum rail facilities have been destroyed.

Silting in the harbor since the mining probably has reduced the depth of the main channel from its normal low-tide of 16 feet to 14 or less feet. This depth encompasses some five miles from zero buoy to the outer bar which must be transited to get to the main wharf area and the Bach Dang petroleum anchorage. Under similar depth conditions in 1968, it took the Soviets about two months to dredge the channel so as to restore its 16-foot depth. Because of high tide conditions, which normally increase the channel depth by about nine feet, all of the vessels now trapped in the harbor could safely exit the main channel, assuming, of course, that the mines have been cleared. Likewise, under this condition loaded ships could safely enter the harbor, although carriage would be restricted. For example, we believe that 11,000 DWT class vessels which normally carry about 8,000 tons of cargo into Haiphong could bring in about 5,000 tons. Carriage on smaller vessels, such as those in the 6,000 DWT class, would also be reduced from their normal of 5,000 tons to about 4,000 tons.

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## APPENDIX

Enemy Rail Reconstruction Prospects Under A Bombing HaltHanoi - Dong Dang Line

All bridges except the Canal des Rapides and the Doumer Bridge could be made serviceable or completely repaired in three days. Currently, the only unserviceable rail crossings are at Bac Giang and Dap Cau. The Bac Giang Bridge's basic support structures are ready to be made serviceable in one day if a prefabricated span observed in the area is ready to be installed. The Dap Cau rail bridge could be given a temporary span in about three days. The Canal des Rapides bridge is missing a long span and, although no appreciable repair effort has been noted, the span could be replaced in four days if materials and other resources were available.

The only bridge on this line that cannot be repaired in less than a week is the Paul Doumer Bridge over the Red River. Damage to it is so severe that a minimum of two or three weeks would be required to make the bridge passable. If the rest of the line were repaired, the North Vietnamese would probably use the rail pontoon/ferry alternate crossing.

Hanoi - Haiphong Line

The major bridges on this line are at Hai Duong, East and West. Neither bridge has been repaired since being destroyed early in [redacted]. They are long, multi-span structures requiring considerable preparatory work, and at least three weeks would be required to open these structures for either vehicular or rail traffic. The North Vietnamese would probably finish alternate rail bridges that had been started and partially (one-half) completed. These alternate bridges could be ready for limited use in about one week.

Rail access to the port of Haiphong would not be a major stumbling block. The original rail/highway bridge on the western edge of town is neither a complicated nor a large bridge. The damaged superstructure has been cleared and the missing spans could be ready in four or five days. In addition, a partially complete rail bypass bridge could

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be finished in one week or less. Operational highway bridges are available here.

Hanoi - Lao Cai

Most of the bridges on this rail line have short spans and are in isolated locations away from population and repair centers. Access to them for repairs is the major consideration. With the exception of the major structure at Viet Tri which would take six to eight weeks to repair, all other bridges could be repaired in two or three days. Viet Tri has two rail ferries and one vehicular ferry, all of which would adequately handle traffic densities. The Vietnamese might choose to build short bypass lines and temporary bridges where original abutments or spans cannot quickly be repaired.

Hanoi - Thanh Hoa

Extensive damage at three bridges on this line -- Ninh Binh, Dong Phong Thuong, and Thanh Hoa -- will prevent its use for through traffic for about a month. Reconstruction of the Ninh Binh and Dong Phong Thuong multi-span bridges across wide water courses also will take at least a month. The most difficult rebuilding on this rail line will be the two-span bridge at Thanh Hoa. Here, a minimum of eight weeks will be necessary because the center pier has been severely damaged and one span completely destroyed. At a minimum, an alternate rail bridge could be erected in some three weeks, if the necessary materials and equipment were available.

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